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DIVISION OF
OIL, GAS & MINING

Mangum Engineering Consultants

388 East Boynton Road Kaysville, Utah 84037 (801)544-3641

File ACT/015/025 #2

1988

John J. Whitehead.
Permit Supervisor/Reclamation Hydrologist
Utah Division of Oil, Gas & Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

15 September 1988

Ref: Co-Op Mining Company, Bear Canyon Mine
NOV-88-20-2-1, PAP Amendments
Division review letter dated 18 August 1988

Dear Mr. Whitehead,

This letter is in response to the review made by Pamela Littig referenced above. After review of these items it became apparent to me that all but one of these items were corrected in the Mid-Term Review for Bear Canyon Mine as it was submitted to the department. The one change to be made in text (Appendix 3-J) of will be submitted with Co-Op's response to your review of the Mid-Term submittal.

Response

PORTION a)
Ref. Technical Review Memo dated 23 May 1988

ITEM #2. Attached is a copy of the referenced text with corrections shown.

ITEM #2 & #3. Corrections have been made as shown in the attached copies of text from the Mid-Term Review which are given for reference purposes only.

Response cont.

PORTION b.)

See Plate 7-1 from the Mid-Term Review.

Copies of the Mid-Term Review submittal plates were not attached to this letter but can be provided if requested.

Please feel free to contact me if you have any questions.

Thank you,

Kimly C. Mangum, P.E.
Permitting & Compliance Consultant

cc: E. Kingston
W. Owen

APPENDIX 3-J

UPPER BEAR CANYON INTAKE PORTAL

AND

EMERGENCY ESCAPEWAY

UPPER BEAR CANYON INTAKE PORTAL AND ESCAPEWAY

In order to facilitate adequate ventilation across the working face as mining advances from the existing intake portal and to provide an alternative escapeway, Co-op Mining requests approvals of the Upper Bear Canyon Portal and Escapeway as shown on Plate 3-4.

This portal is the result of an accidental breakout in the upper portions of Bear Canyon by a continuous miner. The intake adit will simply be enlarged into the exposed coal outcrop approximately 30' above Bear Creek. The outcrop presently has a 6 foot overhang. The overhang is made up of an overlying sandstone seam of approximately 12 feet. The coal being of a more erosive nature than the sandstone is incised into the slope. The toe of the coal outcrop is composed of broken ledge rock and lies on approximately a 50% slope. The nature and location of the outcrop precludes surface access by any means other than foot. Due to this, it is suitable for an escapeway in the event of the catastrophic closure of the existing portal area and is strongly supported by Co-op's safety personnel as well as M.S.H.A.

The portal will be supported by 4" steel "I" beams placed on 5'

centers for a distance of 25' into the slope. The roof will be bolted and shielded as needed with a combination of 1/4" plate and chain link to minimize sluffing of rock. The entry will be reinforced and covered with chain link and posted with a "No Trespassing" sign. There will be an escapeway door installed which will only allow access from within the mine. The chain link will prevent access of people as well as large animals which could theoretically utilize the portal for denning (see attached illustration).

Surface disturbance will be minimal due to the nature of a continuous mining machine pulling the material into the mine. All coal debris that crumbled and fell down the slope has been retrieved by hand. It is important to note that due to the exposed nature of the coal seam, there is eroded coal presently on the slope.

It is anticipated that the reclamation can be accomplished from within the mine by removing all metal support structures and by utilizing a D-2 class Crawler dozer to push ~~large panels~~ non-combustable ~~of coal~~ fill into the portal for a minimum distance of ~~40~~ 25', then install a seal as pictured in Chapter 3 Sec. 3.6.3.1. The natural appearance of the canyon will be re-established with only the sealing of the portal due to the total lack of vegetation on an exposed seam.

Minimal adverse impacts are anticipated to the surrounding environment. Surface water will not enter the mine due to the overhanding ledge and dip of the coal seam at this point. This area of the mine is a sump and may be utilized as an NPDES discharge point at some future time. At the present time, Co-op has taken the necessary action to contain the water within the mine.

There are no raptor nests present within a half mile of the portal as noted on Co-op's most recent raptor survey. Due to the intake nature of this portal and distance from the fan, no increase in noise should be anticipated after construction is completed. Work will be accomplished during the summer months so as not to create disturbance during elk calving period or deer fawning periods. Vegetation and forage loss is not anticipated due to the absence of vegetation on an exposed coal seam.

MINING PLANS

Co-op Mining Company controls 1,915 acres in Emery County Utah, (1700 acres in Bear Canyon , 215 acres in Trail Canyon see figure 1-1), a portion of this area is not included in the permitted mine area. Mining has been conducted on this site from 1938 to the present time and 20 million tons of new, minable coal are estimated to remain in the Blackrock Bed within the permit application area. Production during the first five year period will total 1 million to 1.5 million tons, with an average full capacity production of 200,000 ton/year increasing to 400,000 tons/year. The exact figure will depend on market conditions, of course, (all figures are for raw tons).

Access to the reserves on the property is made through the middle seam portal (referred to as Portal 1). In addition there are two belt portals, one from the middle seam and one from the Hiawatha seam, 1 fan portal, and two intake portals. During 1989 a new fan portal will be added to the Hiawatha seam. Since the mining in many areas involves working in the proximity of the old mine, main entry pillars will be columnized to provide vertical support and prevent "punching" by the pillars, which would produce unsafe working conditions and cause the loss of recoverable coal.

All portals will be sealed when workings cease. Surface breakouts from the seam for ventilation will be made in Bear Canyon and may be made in Trail Canyon. Mining conditions in the future may warrant additional ventilation.

The current mining system employs room and pillar mining with continuous miners. Pillars are removed wherever possible. In the virgin coal areas, development will allow use of either room and pillar or Long-wall methods or a combination of both, with room and pillar preferred wherever feasible.

As the mine develops, main entries will be driven in two sets of either four, five, or six, with barrier pillars separating each set. These main entries will run East to West, to the property boundary. Submain entries will run at right angles from the main entries to the limits of the property.

Overall, an advance-retreat mining system is projected for this mine with retreat mining employed prior to abandonment of each section.

BARRIER PILLARS

Barrier pillars will be left to protect entries within the permit area. The subsidence wave caused by maximum coal recovery will cause only minor and easily repairable damage above the coal outcrops. Mining will be stopped a minimum of

3.3.2 PORTALS

The mine has 7 existing portals,1 Fan, 3 Intake Portals, 2 Belt Portals and 1 Escape Ventilation Portal. In the middle seam there are two intake portals, one is located in Blind Canyon. The second is located in Bear Creek Canyon approximately 1 mile north of the main portal area. (See Plate 3-4, Appendix 3-1).

There are two new portals in the Hiawatha seam, (Belt, and Intake) as shown on Plates 2-2 and 3-4A.

3.3.3 SURFACE BUILDING AND STRUCTURES

Surface structures consist of; shops, parts warehouse, bath house; truck scales, weighman office, mine offices; caretaker dwelling, mine run coal receiver bin, crushing and sizing structure, truck load out bins, stockpile towers, and conveyors to carry coal to storage and load out sites, etc.. A complete list of surface buildings and structures is in Appendix 3.3.4-A and shown on Plate 2-2. Detailed plans for each structure are attached in Addendum 3.3.4-A Plans.

using a 2500' radius of influence from a known coal height, it was determined that an average coal height of 10' was an acceptable (although conservative) figure to use for the Bear Canyon Seam. By the same method, an average height of 5' was determined for the Hiawatha Seam. The reserves in place were then calculated by multiplying the number of acres of mineable coal by 1972 tons/acre ft. (80 lbs./cu. ft. coal in place) times the average coal height for each seam. The recoverable coal reserves was then estimated by multiplying the in-place reserve by a recovery factor of 50%. A 60% recovery factor could be used based on actual recovery experience by Co-op Mining Company in the seams in this area; however, the 50% factor was used to assure the reserve estimate is conservative.

Co-op entered the Hiawatha seam in the summer of 1986. Access to the lower Hiawatha seam was made through 2 new portals in the outcrop, and through a rock slope tunnel from the Bear Canyon seam.

3.4.3.2.1.1 RIDER SEAMS

Available information on rider seams is presented in Section 3.4.3.2.1 (p.3-18) and in Section 6.5.2.3 (p. 6-15) on this MRP. Available borehole data is shown in Figures 3.4.1 thru 3.4.4,

3.6.7.2 MAJOR MODIFICATION TO MINE THE HIAWATHA SEAM (MODIFICATION OF EXISTING BOND AMOUNT)

Co-op Mining will enter the Hiawatha Seam through a portion of old works which were partially covered during road construction to the upper portal. The area in question is presently disturbed and will not constitute and additional area to revegetate, alter natural drainage reconstruction or significantly alter the post-mining contour map in any way.

A new coal receiving bin identical to the existing structure will be constructed as will as approximately 200 additional feet of conveyor; these two structures along with 2 new portals and a small support pad will necessitate the following costs associated with final reclamation:

HIAWATHA SEAM REVISION COSTS:

A.	Seal & Backfill Portals AMR Cost - 3,500/Seal including backfill X 2 seals =	$ 7,000.00
B.	Structures and Conveyor (Secondary) Labor - 3 men X 184.40/day X 2 days	$ 1,106.40
	Equipment (hauling) 1 truck + operator X 16 hrs X 90.65/hr	$ 1,450.40
	1 loader + operator X 16 hrs X $140.70 (950B - 2 1/2 cu. yd. bucket)	$ 2,251.20
	Crane - 2 hrs. @ $121.85/hr.	$ 243.70
	Subtotal	$ 5,051.70

C. Hiawatha Receiving Bin

Labor - 2 men @ $184.40/day X 2 days	$	737.60
1 20 T Crane - 4 hrs X $121.85	$	487.40
1 Truck + Operator - 4 hrs X $90.65	$	362.60
Subtotal	$	1,587.60

Costs in present bond will change to 1986 costs. The revised bonding costs are: (should be added to 1986 Dollars)	$	204,703.00
Reclamation Costs for Hiawatha Seam revision (see below)	$	13,639.00
	$	218,342.00
10%	$	21,834.00
	$	240,176.00

(1986 dollars)

Escalate @ 1.62%

1987 - $ 244,067
1988 - 248,021
1989 - 252,039
1990 - 256,122

presently have $ 237,545 posted in (1990 dollars) (ILOC)
will add $ 18,577 more upon approval of surface facilities.

*In October of 1986, a second ventilation portal was added in the Bear Canyon Seam Approval. The bond was increased to adequately address reclamation of this portal. Bonding increases were based on: Seal and Backfill of portals. Page 3-109. A total increase of 13,639 was added to the previous bond amount of 204,703. This amount was inflated to 1990 dollars and Co-op Mining posted 256,122 on December 29, 1986.

*In the summer 1987-Co-op Mining Co. requested an accidental portal be incorporated in the MTP. This action received conditional approval on September 28, 1987 - The conditions are addressed in appendix 3-3J (Pending Finale Approval - 4/15/88)

*Additions to Bondings after approval of M.R.P.

3.6.8 ALLUVIAL VALLEY FLOOR DETERMINATION UMC 785.19

Co-op contends there are no alluvial valley floors within the permit area. This opinion is based on the following evidence:

1. The soils are of such a nature that both the water holding capacity and the rocky nature preclude any but the sparsest of vegetation cover (See Chapter 8 Soils).

2. The area receives less than 14" annual precipitation and has no evidence of subterranean irrigation.

3. Water quality of the perennial Bear Creek is marginal and the flows are tied to precipitation event rather than ground water interation.